

Economic Profiles of Cancer

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Cancer Survivorship:
Pathways to Health after Treatment
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Concepts of Economic Burden

- ▶ **Prevalence Cost**
- ▶ **Incidence Cost**
- ▶ **Time Cost**

Prevalence Cost

- ▶ **Average cost of treatment for all individuals currently alive with cancer**
- ▶ **Comparable to measures of economic burden for other diseases**
- ▶ **Does not describe the pattern of economic burden over the course of disease**

Incidence Cost

- ▶ Reflects changing pattern of cost with longitudinal course of disease
- ▶ Can be conceptualized in terms of episodes or phases of care

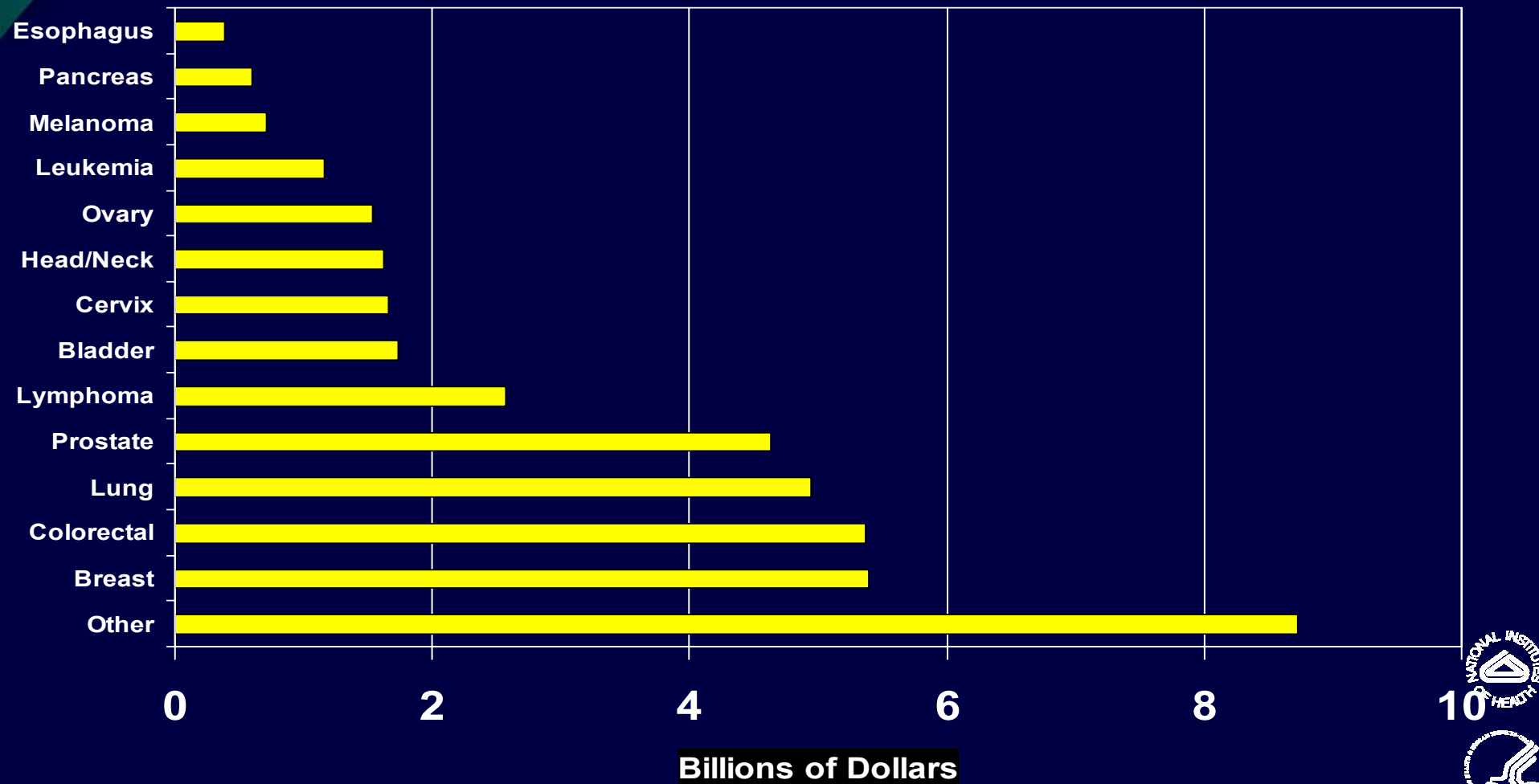
Time Cost

- ▶ **Reflects the value of patient time spent in undergoing treatment instead of engaging in other valuable activities**
- ▶ **Not routinely measured by conventional healthcare accounting systems**

Data Sources

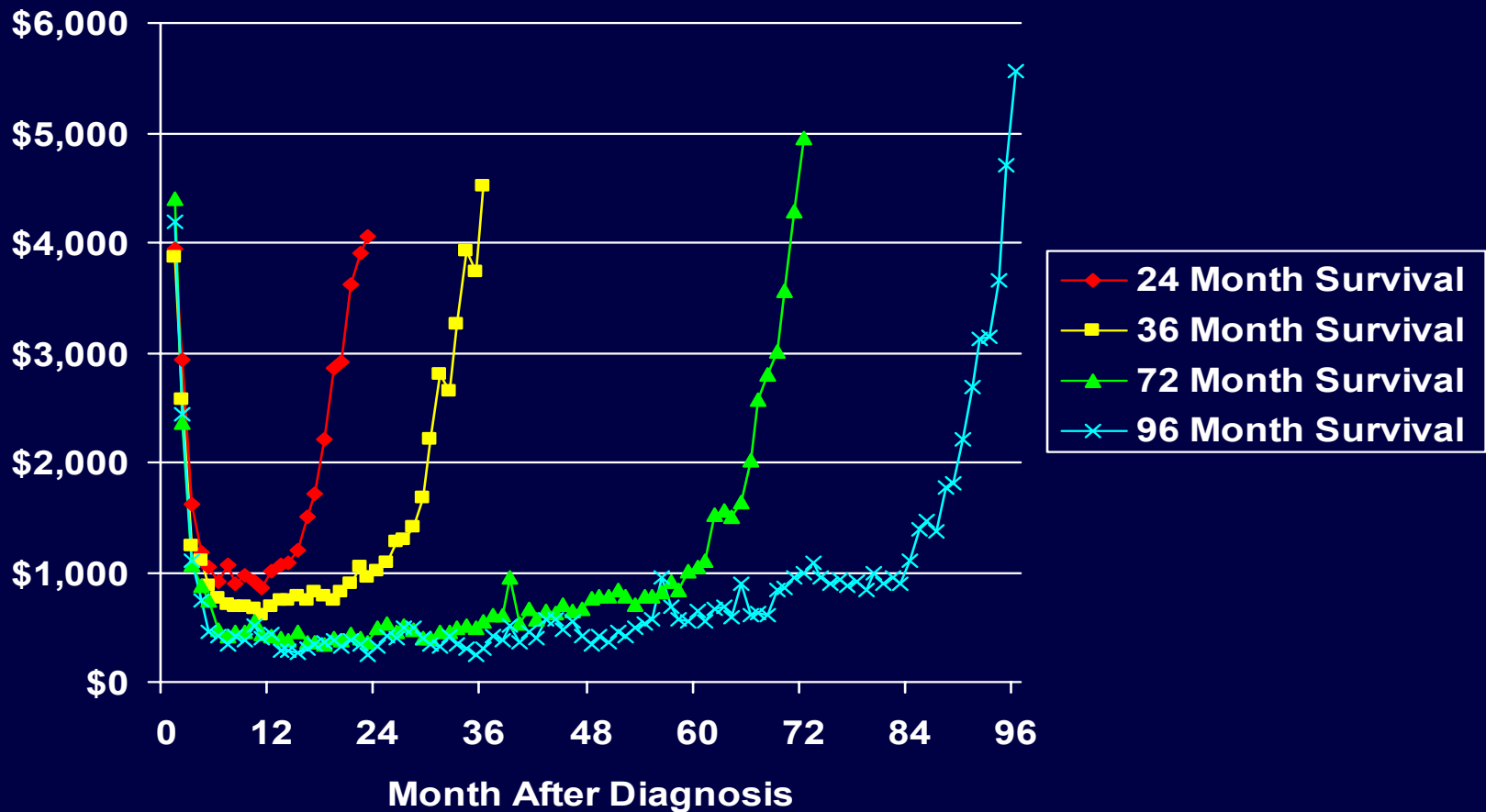
- ▶ **SEER- Medicare**
- ▶ **NCHS National Health Surveys**
- ▶ **References:**
 - ▶ Brown ML, Riley GF, Schussler N, Etzioni RD. Estimating health care costs related to cancer treatment from SEER-Medicare data. *Med Care* 2002 Aug;40(8 Suppl):IV-104-17.
 - ▶ Brown ML, Lipscomb J, Synder C. The burden of illness of cancer: Economic cost and quality of life. *Annu Rev Public Health* 2001;22:91-113.

Treatment Cost by Cancer Type: In 1996 Dollars



Individual Perspective

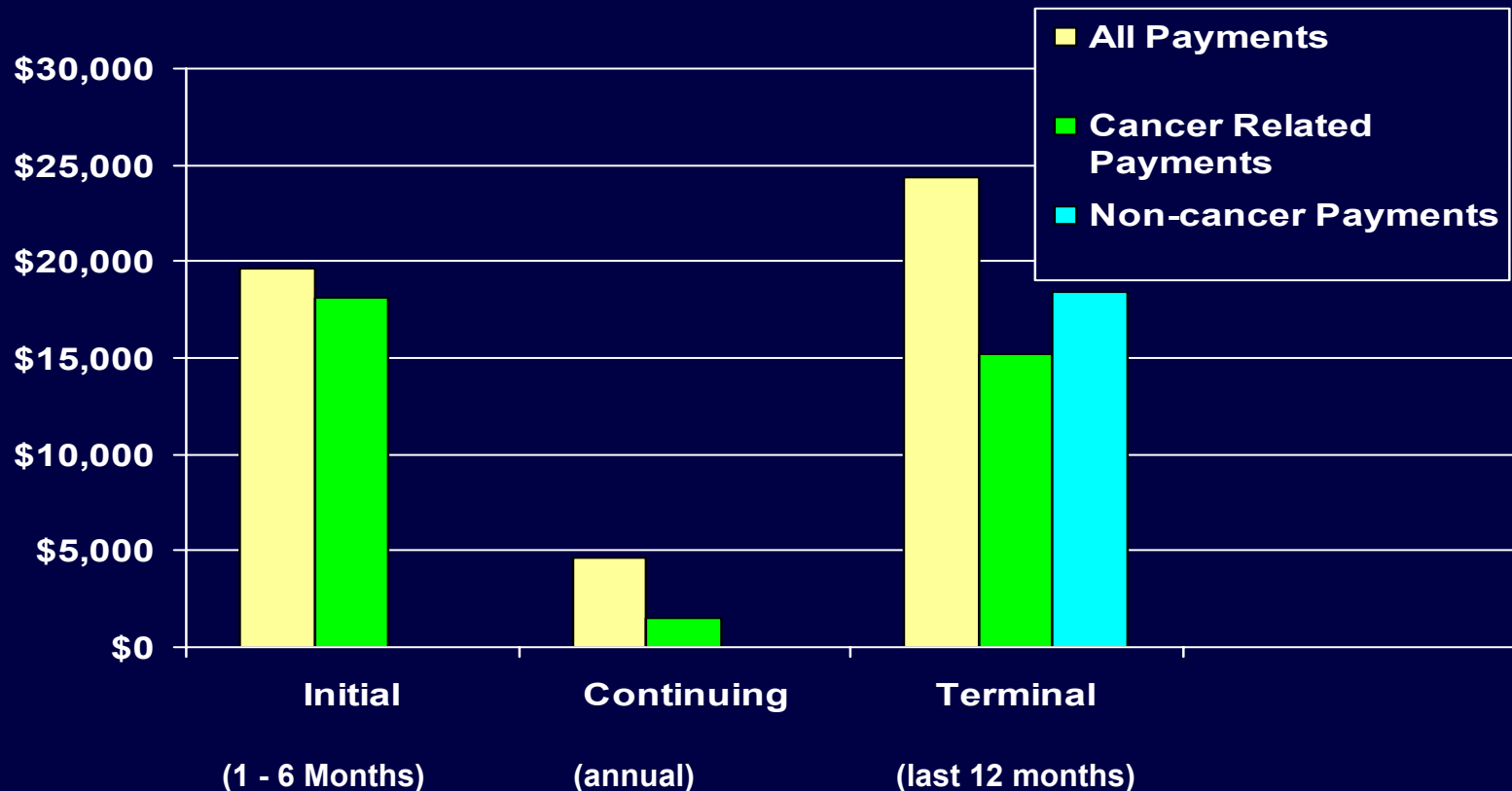
Treatment Cost and Survival: Breast Cancer



Defining phases of treatment

- ▶ The first leg of the U is the initial phase of treatment
- ▶ The second leg of the U is the terminal phase of treatment
- ▶ The floor of the U is the continuing phase of treatment
- ▶ Pre-diagnostic and pre-terminal phases

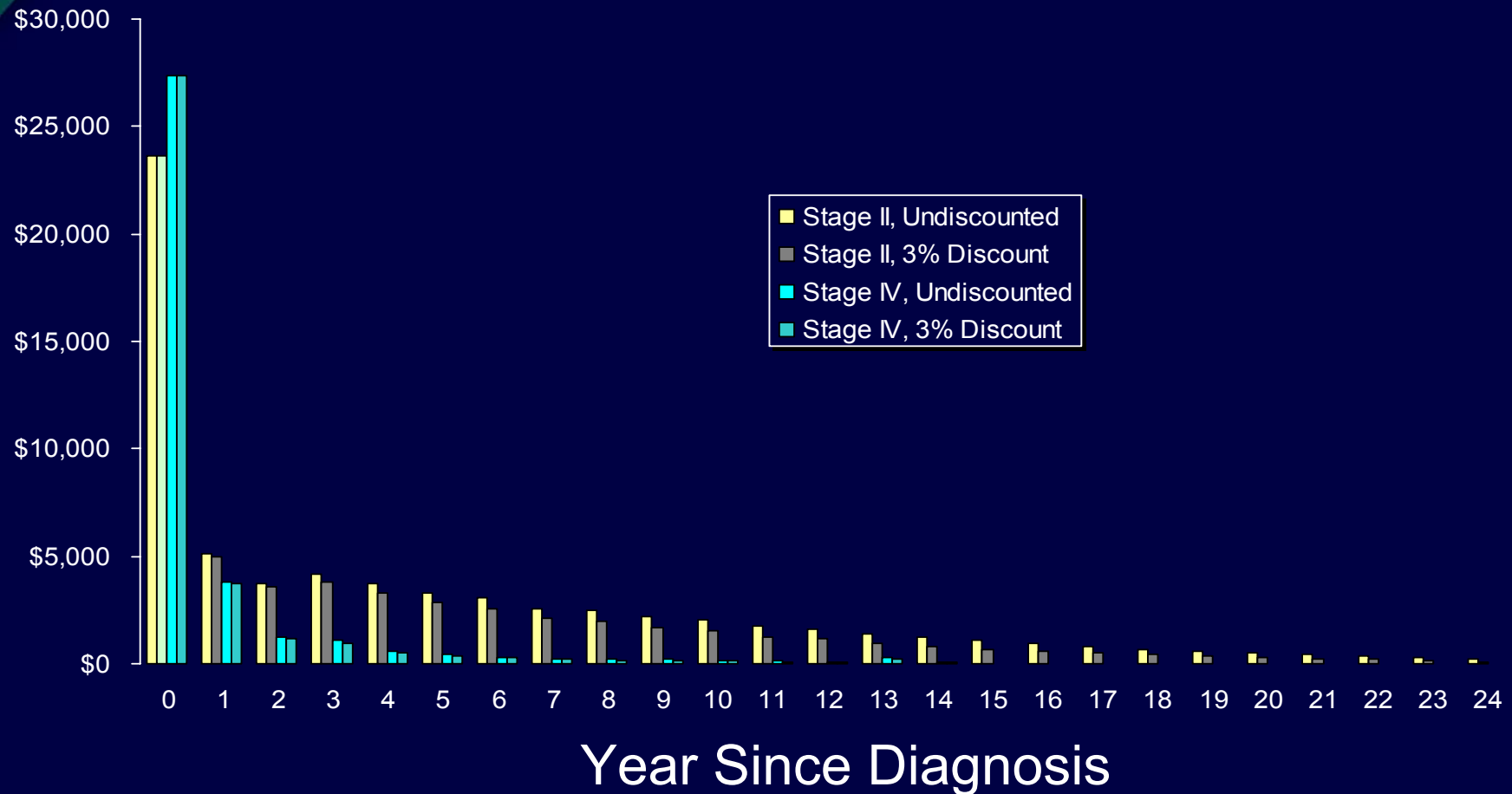
Phase-specific treatment costs: Colorectal Cancer



Cohort Perspective

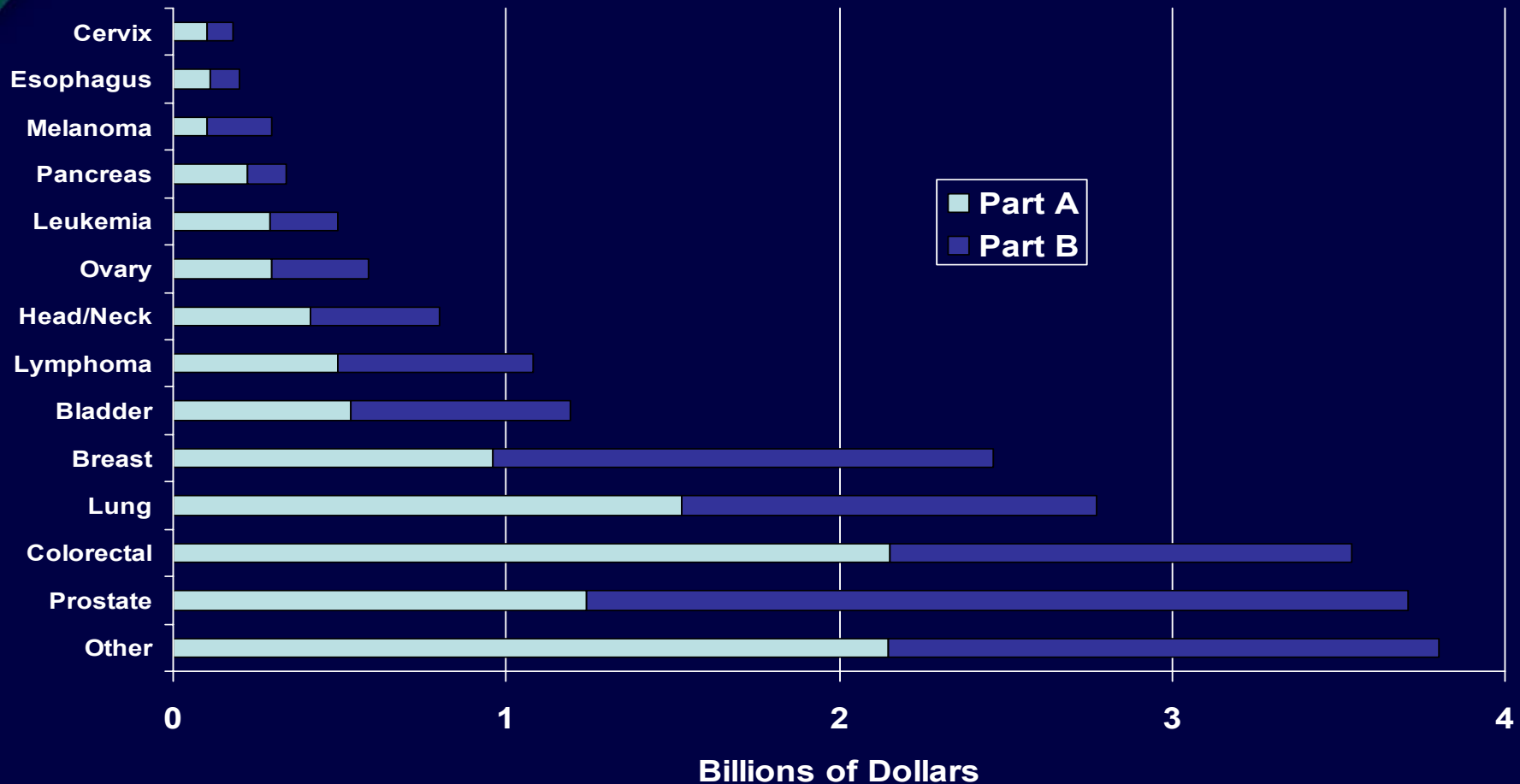
- ▶ Useful for a health plan or payor organization
- ▶ Cost of the “average” cancer case since time from diagnosis
- ▶ Is a weighted average of all the U-shaped curves

Treatment cost following diagnosis, by stage, colorectal cancer



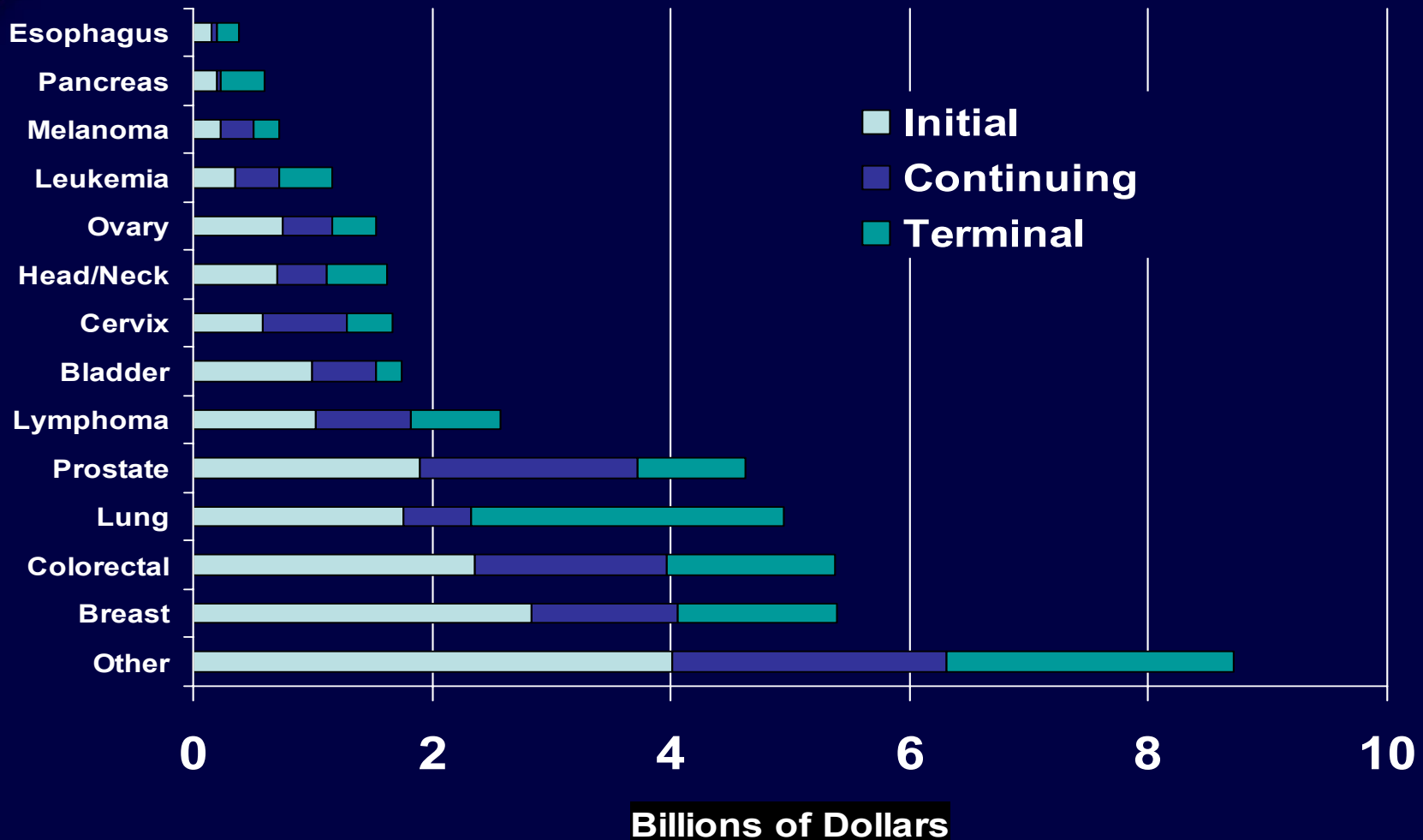
Medicare Perspective

Medicare Cancer Treatment Expenditures: 1996



National Perspective

National Cancer Treatment Expenditures: 1996



Time cost for colorectal cancer: by services counts and hours

	Service	Average Service Counts		Time Estimates (in hours)	
		Cases	Controls	Cases	Controls
Initial Phase	Office visits	15.93	7.41	23.12	10.76
	Emergency room visits	0.55	0.39	1.93	1.38
	Chemotherapy	5.71	0.07	19.64	0.24
	Radiation therapy	1.24	0.07	2.03	0.11
	Hospitalization LOS	17.12	2.18	281.51	42.46
	Out-patient surgery	0.71	0.26	3.73	1.37
	Total**			333.30	56.35
Continuing Phase (per month)	Office visits	0.80	0.62	1.16	0.90
	Emergency room visits	0.04	0.03	0.14	0.11
	Chemotherapy	0.07	0.01	0.24	0.02
	Radiation therapy	0.02	0.01	0.03	0.01
	Hospitalization LOS	0.26	0.18	4.74	3.54
	Out-patient surgery	0.04	0.02	0.20	0.11
	Total**			6.52	4.70
Terminal Phase	Office visits	10.13	7.00	14.70	10.17
	Emergency room visits	0.79	0.71	2.67	2.52
	Chemotherapy	2.49	0.28	8.55	0.97
	Radiation therapy	0.79	0.31	1.30	0.51
	Hospitalization LOS	15.26	14.13	393.54	233.59
	Out-patient surgery	0.15	0.11	0.77	0.58
	Total**			421.88	248.44

Time cost for colorectal cancer: Valued in wage units

	Phase of Care	Patient Time Costs	Direct Medical Costs*	Patient Time As % of Direct Medical Costs
Cases	Initial	\$5,074	\$27,658	18.3
	Continuing (per month)	\$99	\$484	20.5
	Terminal	\$6,423	\$30,815	20.8
Controls	Initial	\$858	\$3,915	21.9
	Continuing (per month)	\$71	\$326	21.9
	Terminal	\$3,783	\$23,238	16.3
Net Costs	Initial	\$4,414	\$23,743	18.6
	Continuing (per month)	\$64	\$158	40.5
	Terminal	\$3,620	\$7,577	47.8

What accounts for continuing care costs?

- ▶ **Lifetime costs for long-term (> 5 years) colorectal cancer survivors = \$19,516 than non-cancer patients**
- ▶ **Surveillance procedures can only account for a fraction of these costs**
- ▶ **What else explains these costs?**

Ramsey et al. Am J of Gastroenterology 2002;97:440-445.

Limitations

- ▶ **Cost estimates based on Medicare**
 - ▶ **Post-diagnostic experience may be different for younger patients**
- ▶ **Recent developments in detection, diagnosis and treatment may change the post-diagnostic experience**
- ▶ **Need for continuing development of updating of data resources**